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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,870	08/14/2001	Michael Schwartz	91-95E	8997
23713	7590	10/05/2004	EXAMINER	
GREENLEE WINNER AND SULLIVAN P C			BHAT, NINA NMN	
5370 MANHATTAN CIRCLE			ART UNIT	
SUITE 201			PAPER NUMBER	
BOULDER, CO 80303			1764	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/929,870

Applicant(s)

SCHWARTZ ET AL.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                   |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

#### DETAILED ACTION

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-14 and 19-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 10 and 21-34 of U.S. Patent No. 6,355,09. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the application and the '093 patent claim a membrane for use in a catalytic membrane reactor which comprises a mixed metal oxide having the stoichiometry:  $A_{2-x}La_xB_{2-y}Fe_yO_{5+z}$  wherein A is an alkaline earth metal ion or mixture of alkaline earth metal ions, B is a metal ion or mixture of metal ions where the metal is selected from the group consisting of 3d transition metals, or the group 13 metals, x and y, independently of one another are numbers equal to or greater than zero and less than 2 and z is a number that renders the compound neutral. The membrane can also be made a mixed metal oxide having the stoichiometry of  $Sr_{2-x}La_xGa_{2-y}C_yO_{5+z}$ . The difference between the instant application and that of the '093 patent is that the catalytic membrane of the '093 patent has a specific three dimensional structure the 3-d structure has not been specifically claimed in the instant application and to modify the catalyst membrane to include an oxidation and reduction zone, an adherent catalyst layer and three-dimension catalyst would have been obvious as the membrane of the instant application is broad enough to encompass the structure as claimed in the '093 application and thus would

have been an obvious modification based on the type of application and type of reactor being used. The catalytic stoichiometry for the catalytic membrane are the essentially the same in both the application and the '093 patent and not patentably distinct.

3. Claims 1-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-50 of U.S. Patent No. 6,033,632.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant invention and that of the '632 patent claim a solid state oxygen anion and electron mediating membrane for use in catalytic membrane reactors for promoting partial or full oxidation of different chemical species, for decomposition of oxygen containing species and for separation of oxygen from other gases. The solid state materials include mixed metal oxide compounds having the stoichiometry of  $A_{2-x}La_xB_{2-y}Fe_yO_{5+z}$  wherein A is an alkaline earth metal ion or mixture of alkaline earth metal ions, B is a metal ion or mixture of metal ions where the metal is selected from the group consisting of 3d transition metals, or the group 13 metals, x and y, independently of one another are numbers equal to or greater than zero and less than 2 and z is a number that renders the compound neutral. The membrane can also be made a mixed metal oxide having the stoichiometry of  $Sr_{2-x}La_xGa_{2-y}C_yO_{5+z}$ . The difference between the instant application and that of the patent is that in the '632, the claim specifically recites a reduction surface which in operation in a catalytic membrane reactor contacts an oxygen containing gas and oxidation surface which in operation in a catalytic membrane reactor contacts a reactant gas a partial vacuum or an oxygen deplete gas which is the inherent function or conditions which would exist when the solid state membrane is used in a catalytic membrane.

4. With a timely filed and properly executed Terminal Disclaimer, this case would be in condition for allowance.


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5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mackay et al. Van Calacar et al. and Schwartz teach mixed phase materials for the preparation of catalytic membranes, which exhibit ionic and electronic conduction. Risdal teach a solid multicomponent membrane for use in a reactor comprising mixed metal oxides for use in catalytic membrane reactors for the production of synthesis gas. Balachandran et al. teach a membrane reactor to convert methane gas into value added products.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
N. Bhat  
Primary Examiner  
Art Unit 1764

7.